

WHAT IS CLAIMED IS:

1. A wireless stylus comprising:
a housing;
a central processing unit (CPU) disposed in said housing;
a wireless communication receiver disposed in said housing and communicatively coupled to said CPU, wherein said wireless communication receiver is configured to receive haptic commands from a host computing device; and
an actuator communicatively coupled to said central processing unit, wherein said actuator is configured to produce a haptic sensation;
said haptic sensation being controlled by said CPU in response to said haptic commands.
2. The wireless stylus of claim 1, wherein said housing comprises a cylindrical shape.
3. The wireless stylus of claim 1, wherein said haptic commands from a host computing device are associated with an input signal received by a host application running on said host computing device.
4. The wireless stylus of claim 1, wherein said CPU comprises one of a processor, a microprocessor, or an application-specific integrated circuit (ASIC).
5. The wireless stylus of claim 1, wherein said wireless communication receiver comprises a radio frequency (RF) receiver.
6. The wireless stylus of claim 1, wherein said wireless communication receiver comprises an infrared (I/R) receiver.

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7. The wireless stylus of claim 1, further comprising a power supply disposed in said housing;

wherein said power supply is configured to selectively provide power to said CPU and said actuator.

8. The wireless stylus of claim 7, wherein said power supply comprises a battery.

9. The wireless stylus of claim 8, wherein said battery comprises a rechargeable battery.

10. The wireless stylus of claim 9, further comprising an external power connector disposed on a surface of said housing, wherein said external power connector is configured to provide power to said rechargeable battery when said external power connector is coupled to an outside power source.

11. The wireless stylus of claim 1, wherein said actuator comprises an electromechanical device.

12. The wireless stylus of claim 11, wherein said actuator further comprises one of a linear actuator, a repulsive magnet pair, or a rotary actuator.

13. The wireless stylus of claim 1, further comprising:
a data storage device communicatively coupled to said CPU; and
a clock device communicatively coupled to said CPU.

14. The wireless stylus of claim 13, wherein said data storage device comprises a data lookup table configured to match one of said haptic commands with a corresponding actuator control signal.

15. The wireless stylus of claim 1, further comprising a light emitting device communicatively coupled to said CPU, wherein said light is configured to be illuminated in response to said haptic commands.

16. The wireless stylus of claim 15, wherein said light emitting device comprises a light emitting diode (LED).

17. The wireless stylus of claim 1, further comprising a speaker disposed on said housing;

wherein said speaker is communicatively coupled to said CPU, and wherein said CPU is configured to command said speaker to emit a sound.

18. The wireless stylus of claim 17, wherein said sound is associated with said haptic sensation.

19. The wireless stylus of claim 1, further comprising a replaceable ink cartridge disposed in said housing;

wherein said replaceable ink cartridge may be selectively positioned to mark an ink receiving medium.

20. A system for providing force feedback to a wireless input device comprising: a data interface configured to be communicatively coupled to a host computing device; and

a data input device configured to input data to said interface;

wherein said data input device includes a housing, a central processing unit (CPU) disposed in said housing, a wireless receiver communicatively coupled to said CPU, and an actuator communicatively coupled to said CPU, wherein said actuator is configured to produce a haptic sensation.

21. The system of claim 20, wherein said host computing device and said data interface comprise a single functional unit.

22. The system of claim 20, wherein said host computing device comprises one of a personal computer or a workstation.

23. The system of claim 22, wherein said data interface comprises a tablet.

24. The system of claim 23, wherein said data input device comprises a stylus configured to interact with said host feedback application by inputting data into said host computing device via said tablet.

25. The system of claim 20, wherein said housing comprises a cylindrical shape.

26. The system of claim 20, wherein said host computing device is configured to transmit wireless haptic commands to said data input device in response to an input signal received from said data interface.

27. The system of claim 20, wherein said wireless transmitter comprises a radio frequency (RF) transmitter and said wireless receiver comprises an RF receiver.

28. The system of claim 20, wherein said wireless transmitter comprises an infrared (I/R) transmitter and said wireless receiver comprises an I/R receiver.

29. The system of claim 20, further comprising a power supply disposed in said housing;

wherein said power supply is configured to selectively provide power to said CPU and said actuator.

30. The system of claim 29, further comprising an external power connector disposed on a surface of said housing, wherein said external power connector is configured to facilitate a recharging of said power supply.

31. The system of claim 20, wherein said actuator comprises an electromechanical device.

32. The system of claim 21, wherein said actuator further comprises one of a linear actuator, a repulsive magnet pair, or a rotary actuator.

33. The system of claim 20, further comprising a light emitting diode (LED) communicatively coupled to said CPU, wherein said LED is configured to illuminate in response to said haptic commands.

34. The system of claim 20, further comprising a speaker disposed on said housing;

wherein said speaker is communicatively coupled to said CPU, and wherein said CPU is configured to selectively cause said speaker to emit a sound

35. The system of claim 34, wherein said sound is associated with said haptic sensation.

36. The system of claim 20, further comprising a replaceable ink cartridge disposed in said housing;

wherein said replaceable ink cartridge may be selectively positioned to mark an ink receiving medium.

37. A wireless stylus comprising:
a means for housing components;
a means for processing data, said processing means being disposed in said housing means;
a means for wireless communication disposed in said housing means and communicatively coupled to said processing means; and
a means for actuating communicatively coupled to said processing means, wherein said actuating means is configured to produce a haptic sensation;
said haptic sensation being controlled by said processing means.

38. The wireless stylus of claim 37, wherein said means for wireless communication is configured to receive haptic commands from a host computing device; and
wherein said means for processing is configured to control said means for actuating in response to said haptic commands.

39. The wireless stylus of claim 38, further comprising a means for supplying power to said stylus, wherein said means for supplying power is disposed in said means for housing.

40. The wireless stylus of claim 38, wherein said haptic commands from a host computing device are associated with an input signal received by a host application running on said host computing device.

41. A method for producing force feedback in an input device comprising:
receiving stylus location data in a host computer;
associating said stylus location data with an event in a host computer application; and
if said stylus location data corresponds to an event in said host computing application, transmitting a haptic command signal to said stylus using a wireless communication device.

42. The method of claim 41, wherein said wireless communication device comprises one of a radio frequency (RF) transmitter or an infrared (I/R) transmitter.

43. The method of claim 41, further comprising:
receiving said haptic command signal in said stylus;
transmitting said haptic command signal to a central processing unit (CPU) in said stylus; and
operating an actuator in response to said haptic command signal.

44. The method of claim 43, wherein said stylus receives said haptic command through one of an RF receiver or an I/R receiver.

45. The method of claim 43, wherein said actuator response produces a haptic sensation corresponding to said event in said host computing application.

46. A processor readable medium having instructions thereon for:
receiving a wireless haptic command from a host computing device;
associating said wireless haptic command with a haptic response signal; and
controlling an actuator with said haptic response signal.

47. The processor readable medium of claim 46, wherein said associating said wireless haptic command with a haptic response signal comprises converting said wireless haptic command to a haptic response signal using a data lookup table.

48. The processor readable medium of claim 46, further comprising instructions for illuminating a light source in response to receiving said wireless haptic command.

49. The processor readable medium of claim 46, further comprising actuating a speaker in response to said wireless haptic command.

50. A system for providing force feedback to an input device comprising:
a data input device configured to input data to a computing device;

wherein said data input device includes a housing, a central processing unit (CPU) disposed in said housing, a rotational trackball communicatively coupled to said CPU, and an actuator communicatively coupled to said CPU, wherein said actuator is configured to produce a haptic sensation on said trackball in response to signals received from said computing device.

51. The system of claim 50, wherein said host computing device and said data input device comprise a single functional unit.

52. The system of claim 50, wherein said host computing device comprises one of a personal computer, a workstation, or a laptop.

53. The system of claim 50, further comprising a light emitting device communicatively coupled to said CPU, wherein said light is configured to be illuminated in response to said haptic commands.

54. The system of claim 53, wherein said light emitting device comprises a light emitting diode (LED).

55. The system of claim 50, further comprising a speaker disposed on said housing;

wherein said speaker is communicatively coupled to said CPU, and wherein said CPU is configured to command said speaker to emit a sound in response to said haptic commands.